US008195395B2

(12) **United States Patent**
Teng et al.

(10) **Patent No.: US 8,195,395 B2**
(45) **Date of Patent: Jun. 5, 2012**

(54) **SYSTEM FOR MONITORING, DETERMINING, AND REPORTING DIRECTIONAL SPECTRA OF OCEAN SURFACE WAVES IN NEAR REAL-TIME FROM A MOORED BUOY**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 373 days.

(21) Appl. No.: **12/554,910**

(22) Filed: **Sep. 6, 2009**

(65) **Prior Publication Data**

US 2011/0060525 A1 Mar. 10, 2011

(51) **Int. Cl.**
G01V 3/00 (2006.01)
G01V 7/00 (2006.01)

(52) **U.S. Cl.** **702/2**; 702/45; 702/50; 702/76; 702/77; 702/141; 702/150; 702/151; 702/179; 702/188; 702/191

(58) **Field of Classification Search** 702/2, 45, 702/50, 76, 77, 141, 150, 151, 179, 188, 702/191; 324/76.19, 76.21; 73/170
See application file for complete search history.

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(57) **ABSTRACT**

A moored buoy floating at the ocean surface and anchored to the seafloor precisely measures acceleration, pitch, roll, and Earth's magnetic flux field of the buoy over a limited sampling period. The system includes: 1) A buoy, 2) A mooring system, 3) An electronic data logger controlling communications between the system and the on-board remote telecommunications system, 4) an embedded computer for data input/output, temporary or permanent data storage, and algorithms to convert the measured time series data into surface ocean wave spectra and quality assurance statistics and encode the results for transfer to the data logger, 5) Sensors include one or three acceleration sensors, three orthogonal angular rate sensors, and three orthogonal magnetometers to measure the Earth's magnetic flux field, 6) A telecommunications system that links the buoy data logger and a shoreside processing system, and 7) A shoreside processing system that decodes the transmitted data, performs, quality control, and computes derived wave parameters.

18 Claims, 2 Drawing Sheets